

Accuracy in Powder Diffraction III—Part 1

Preface

With the continuing advancements in the powder diffraction technique, a broad-based review conference was warranted. Accordingly the IUCr Commission on Powder Diffraction, in conjunction with the National Institute of Standards and Technology and the International Centre for Diffraction Data organized a third Accuracy in Powder Diffraction, APD-III, for April 22-25, 2001, following the successes of similar conferences held in 1979 and 1992. The proceedings of the conferences remain highly referenced to this day. For this reason, it was decided to publish within the Journal of Research of the National Institute of Standards and Technology.

The number of papers was too large to be published within a single issue of the Journal, so papers were divided, on a somewhat arbitrary basis, between the issue you are viewing, and a subsequent issue. Given the numerous new developments in powder diffraction methodology, the conference length was increased to four days, but still there was too little time for adequate oral presentation of many important topics, for example quantitative analysis. However, an extensive poster session was held and authors of posters were invited to submit extended abstracts, which will appear in the subsequent volume of these proceedings.

The conference was organized in five sessions: Instrumentation, Optics Characterization and Powder diffraction Techniques, Metrology, Structure Solution and Refinement, Phase Identification and Quantification, and Microstructure, Lattice Defects and Residual Stress. In addition to a poster session, a 2 hour period was set aside for a “round table” discussion of issues pertaining accuracy and methodology in powder diffraction. This proved to be a most successful exchange, limited only by available time.

We, the organizers, enjoyed financial support from a range of organizations, both non-commercial and commercial, which was critical to success of this meeting. We also wish to thank the session organizers, all of those individuals who worked on the various committees, and Kathleen Kilmer and the staff of NIST Conference Program whose hard work assured the success of this meeting.

James P. Cline

Brian H. Toby

Jeffrey E. Post

Paolo Scardi

Special Issue Editors

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